NOTES

WE are glad to be able to announce that Stonehenge has been offered to the nation, and accepted on behalf of the Government by the First Commissioner of Works. The munificent donor is Mr. C. H. E. Chubb, of Salisbury, who bought Stonehenge in 1915. For the duration of the war the income of the property is to be handed to the British Red Cross Society.

THE following Food Council to consider general questions of policy affecting the administration of the Ministry of Food has been constituted:—The Rt. Hon. J. R. Clynes (Food Controller), chairman; Major the Hon. Waldorf Astor (Parliamentary Secretary to the Ministry of Food), deputy-chairman; Sir Alan Anderson, K.B.E., vice-chairman; Sir J. F. Beale, K.B.E. (First Secretary to the Ministry of Food); Mr. W. H. Beveridge (Second Secretary to the Ministry of Food); Mr. W. H. Peat; Capt. S. G. Tallents; and Mr. E. F. Wise. Mr. F. L. Turner will act as secretary. The following special Boards in connection with the Council are being constituted:—Imports Board, Home Supplies Board and Joint Finance Board.

NOTICE has been given that summer time will cease and normal time be restored at 3 a.m. (summer time) in the morning of Monday next, September 30, when the clock will be put back to 2 a.m. The hour 2–3 a.m. summer time will thus be followed by the hour 2–3 a.m. Greenwich time.

DR. W. W. CAMPBELL, the director of the Lick Observatory, of the University of California, has been elected a correspondant of the Institute of France in the section of astronomy.

THE Montyon prize of the Paris Académie des Sciences, of the value of 100*l.*, has been awarded to Drs. H. Guillemard and A. Labat for their researches on asphyxiating gases

THE annual Thomas Hawksley lecture of the Institution of Mechanical Engineers will be delivered in the hall of the Institution of Civil Engineers on Friday, October 4, by Dr. W. C. Unwin, who will take as his subject "The Experimental Study of the Mechanical Properties of Materials."

AN address on "Commerce and Industry after the War" will be given, under the auspices of the Industrial Reconstruction Council, by Sir Albert Stanley, President of the Board of Trade, on Wednesday, October 2, at 4.30, in the Saddlers' Hall, Cheapside, tickets of admission to which can be obtained from 2 and 4 Tudor Street, E.C.4. At the recent annual meeting of the Council the following new members were elected to the executive committee:—Sir C. McLeod, Miss L. Dawson, Mr. G. Selby, Mr. J. Baker, Mr. T. O. Jacobsen, Miss M. F. Peake, Mr. E. W. Mundy, and Lieut. H. V. Roe.

THE Meteorological Office has given notice that it will not issue further copies of the Daily Weather Report, the Weekly Weather Report, and the Monthly Weather Report during the war. Subscribers and others are notified that, by arrangement with the director, copies can be retained for them and delivered after the war. Observations will be made as hitherto, and doubtless all the reports will be promptly prepared and printed, but they are no longer available except for public service, where all meteorological information is at present of the highest value.

A MONUMENT in bronze has been erected to Oswaldo Cruz at Rio de Janeiro. It represents Cruz in a sitting posture, and bears the following inscription:—"A Oswaldo Cruz, Homenagem do pessoal da Directoria Geral de Saude Publica, 23-III-1903—19-VIII-1909," the dates marking the period of his most productive work, the eradication of yellow fever from Rio.

IN accordance with the decision arrived at at the extraordinary general meeting of the Institute of Chemistry held on April 27, local sections are now being formed in various important centres. The inaugural meeting of the Liverpool and North-Western section of the institute was held on Thursday, September 12. The registrar, who was in attendance by the direction of the council, referred to the objects to be attained by the establishment of local sections. It is anticipated that local sections will be inaugurated during the coming session at Manchester, Birmingham, Edinburgh, Glasgow, Gretna, and probably other centres.

THE twenty-second annual autumn foray of the British Mycological Society was held, in conjunction with the Yorkshire Naturalists' Union, at Selby from September 9 to 14, under the presidency of the Very Rev. Dr. David Paul. On September 9 Dr. Harold Wager delivered a popular address on fungi. On September 11 Dr. Paul gave his presidential address on "The Earlier Study of Fungi in Britain," dealing with mycological work up to the time of Berkeley. Other papers contributed during the week were two by Dr. Wager on "Spore Coloration in the Fungi" and on "A Fluorescent Colouring Matter from *Leptonia incana*"; "New or Rare British Parasitic Fungi," by Mr. A. D. Cotton; and "Observations on some Sand-dune Fungi," by Mr. H. J. Wheldon. At the general business meeting the officers for the ensuing year were elected as follows:—President, Dr. Harold Wager; vice-president, Miss G. Lister; general secretary and editor, Mr. C. Rea; secretary and recorder, Miss E. M. Wakefield; treasurer and foray secretary, Mr. A. A. Pearson. These, with the following elected members, Mr. W. N. Cheesman, Dr. B. Elliot, Prof. M. C. Potter, and Miss A. Lorrain Smith, will form a council for the general management of the society.

WE learn from *Science* that news has been received by Prof. R. F. Griggs, director of the Katmai expeditions of the U.S. National Geographic Society, announcing the termination and giving particulars of the work of this year's field party, composed of Messrs. J. Sayre and P. R. Hagelbarger, in the Valley of Ten Thousand Smokes. The topographic survey begun last year was extended to the shore of the Bering Sea, adding some 1500 square miles to the map, and completing a section across the base of the Alaska Peninsula from Katmai Bay to Naknek. This survey will furnish the data for the construction of a topographic map on the scale of 1/250,000 of the same standard of accuracy as the work of the United States Geological Survey on maps of this scale.

A BI-MONTHLY periodical entitled the *Journal of General Physiology* is about to be started by the Rockefeller Institute for Medical Research, New York. It will be edited by Dr. Jacques Loeb and Prof. W. J. V. Osterhout. Its aim is to serve as an organ of publication for papers devoted to the investigation of life-processes from a physico-chemical viewpoint.

IT has been decided to found a medical journal in Mexico for the publication of contributions by Mexican physicians and surgeons and information concerning the progress of the medical sciences in other parts of the world. Dr. F. Bello, of Puebla, has been appointed editor.

WE note with regret that the name of Capt. H. A. Renwick has been added to the growing list of young men who have sacrificed their lives in the development of experimental aerodynamics. Capt. Renwick was killed in a flying accident on August 19. After having been a student of Pembroke, and taking Seconds in the Mechanical Science Tripos, he entered Messrs. Yarrow's as an apprentice In the first month of the war Capt. Renwick was gazetted to a pioneer battalion of the South Wales Borderers, and served for some time in France. Having been severely wounded, he was, early in 1916, attached to the Royal Aircraft Factory. Here he found a congenial opening for his scientific powers, and was soon placed in charge of the instruments and apparatus used in experimental flights. Then, as chief of the corps of observers engaged in aero-dynamical experiments in the air, he was closely associated with all the full-scale work carried out at Farnborough, and made valuable contributions to this rapidly developing science. He learned to fly, and made a number of solo experimental flights. Capt. Renwick was a keen and enthusiastic observer, and his incidental observations of physical and meteorological conditions in the air constitute additions of permanent value to the data now being collected towards a fuller knowledge of the physics of the atmosphere.

AN appreciative obituary notice of the late Prof. G. Archibald Clarke, who died on April 27 last, appears in *Science* for August 30. We are glad to see that full justice has been done to his memory in regard to his work as secretary of the International Fur Seal Commission, the findings and policy of which he profoundly influenced. Prof. Clarke was a man who possessed the faculty to an unusual degree of seizing upon essentials and of taking wide views. Hence, as a consequence of his numerous visits to the Pribiloffs on the work of the Commission, he brought together an immense store of facts in regard to the life-history of the fur seal which will form a lasting monument to his memory. Careful of the smallest detail in regard to every aspect of this subject, he ever kept before him the fact that his observations were also to be used by those who had a purely commercial interest in these herds and their preservation. During 1912–13 he carried on investigations designed to extend over a period of four or five years for the purpose of arriving at data as to the rate of increase of such herds, then apparently rapidly diminishing. But, unfortunately, changes in method and *personnel* since 1913 have made this ideal well-nigh hopeless. Fortunately, Prof. Clarke has left a fine record of his many-sided studies of the fur seal problem in numerous memoirs and articles published in *Science* and other scientific and popular magazines. In his capacity as academic secretary to Stanford University he displayed business talent of a high order; hence his services to the University during its early years of existence cannot be overestimated.

THE March part of the *Museum Journal* of the University of Philadelphia (vol. ix., No. 1, 1918) is entirely devoted to the study of American art, the native production untouched by outside influences. We know little about the mythology of the Mayas represented in their painting, sculpture, and other decorative arts, but a faint notion of some of its traits, if not of its contents, may be gathered from the folk tales still current in remote districts of Central America. As leading examples of this indigenous art, Mr. G. B. Gordon describes a remarkable piece of sculpture entitled "A King in all his glory," from the ancient city of Copan, in Honduras, and one of "The Captives," found a few years ago on the Usumacinta River. While in motif and method these carvings will look strange to artists trained under European traditions, they display a remarkable power of characterisation and execution, which are well illustrated by Mr. Gordon's interpretation. Other noteworthy specimens of local American art described in this pamphlet are a fine Maya vase, a pair of fine totem-poles, and beautiful examples of Huron quill-work and of the decorative arts of the Indians of the Amazon.

THE report for the year 1917 of the Museums of the Brooklyn Institute of Arts and Sciences contains some striking figures in regard to the attendance of children, for whom, as in all the American museums, special rooms and collections are set apart. During the year 6226 school-children, with 239 teachers, visited the museum for special instruction. "One thousand four hundred and fifty-six boys and girls of high-school age consulted scientific and literary books and periodicals, and prepared for debates." The juvenile visitors and students are catered for by a special staff, and there can be no doubt that extremely valuable educational work is achieved by this branch of the museum's activities.

THE Corporation of Hull has formed a special museum for the illustration of the shipping and fishing industries. An interesting part of the collection is a series of coins and tokens illustrating the evolution of shipping. Typical examples of medieval ships are shown on the seals of Scarborough, Hedon, and many other places. The seventeenth-century tokens, which are so eagerly sought for, show many representations of ships, anchors, etc. The token of Earl Howe (1705) bears on the reverse, "The Wooden Walls of Old England," with a typical example of a fighting ship with tall masts. The collection is described by Mr. T. Sheppard in vol. ii., part 2, of the Transactions of the Yorkshire Numismatic Society.

ALL who are interested in the anatomy of the Cetacea will welcome a memoir on the skull of Cuvier's whale (*Ziphius cavirostris*) which appears in the Bulletin of the American Museum of Natural History (vol. xxxviii., p. 349). The author bases his study on two skulls—one of a young adult female, the other of a ripe fœtus which had been disarticulated. These he describes in detail, and his descriptions will prove of great value to future workers, as well as to those who desire to use his results in comparative work. In the course of his memoir he advances some interesting speculations as to the factors which have brought about the very remarkable changes which have taken place in the morphology of the cetacean skull, and these are worthy of careful consideration.

IN *Sudan Notes and Records* (vol. i., No. 3, July, 1918) a plea is made on behalf of the white ant, which has naturally acquired a bad reputation among European residents. The characteristic feature of the climate of the Sudan is the rapid growth of vegetation promoted by seasonal rains or artificial irrigation, followed by a period of drought and desiccation. The white ant attacks vegetation only when it is weakened by drought or disease, and in that case the sooner it is destroyed the better. But for the activity of the white ant the whole of the fertile parts of the Sudan would, in a very few years, be covered with an impenetrable layer of dead vegetation; and the only alternative method to clear it off would be by the agency of fire, the dangers of which are obvious.

A SECOND edition of vol. v. of "Special Reports on the Mineral Resources of Great Britain," dealing with potash-felspar, phosphate of lime, alum shales, plumbago or graphite, molybdenite, chromite, talc and steatite (soapstone, soap-rock, and potstone), and diatomite, has just been issued by the Ordnance Survey Office, Southampton, and in London by Messrs. T. Fisher Unwin, Ltd. It is mainly a reprint of the first edition, but gives additional information respecting potash-felspars, steatite, and diatomite.

THE *National Geographic Magazine* for June last contains a very fine series of instantaneous photographs illustrating the processes of coastal erosion and accumulation. We do not think that anything is gained by the comparisons with military operations, made by Mr. La Gorce in a series of journalistic titles and descriptions. These tend, indeed, to divert attention from the interesting records that he has brought together.

STILL further exactitude is given to our knowledge of the minerals of the silica series by Messrs. J. B. Ferguson and H. E. Merwin (*Amer. Journ. Sci.*, vol. xlvi., 1918, p. 417). The melting-point of tridymite has now been determined for the first time, and is given as 1670° ± 10°, while that of cristobalite proves to be 1710° ± 10°, thus justifying Bowen's comments on previous results in 1914.

THE occurrence of copper at certain stratigraphical horizons has been attributed to the accumulation of salts of the metal in the blood of organisms, and Mr. A. H. Phillips, of Princeton, now advances a similar suggestion for vanadium (*Amer. Journ. Sci.*, vol. xlvi., 1918, p. 473). This element has been found in certain ascidians and holothurians. Although it may be detected in almost all igneous rocks, its commercial sources are sedimentary rocks or coals.

THE conclusion that two distinct epochs of drift-deposition are well marked in Iowa is still further strengthened by Messrs. W. C. Alden and M. M. Leighton in the annual report of the Iowa Geological Survey for 1915, p. 49. The strong clay or "gumbo" produced by prolonged weathering of the underlying Kansan drift is overlain by the drift of the Iowan epoch. We must now be prepared for the perpetuation of the quaint term "gumbo," as well as G. F. Kay's "gumbotil," in glacial geology.

THE bulletins of several seismological observatories have reached us recently. The most complete are naturally those published in neutral countries, such as those of the Dutch station of De Bilt, near Utrecht, for the years 1914 and 1915 (*Konink. Nederl. Meteor. Inst.*, No. 108), and of Zi-ka-wei (China) for February to May of the present year. Instead of the annual volume of "Notizie sui terremoti osservati in Italia," the Central Geodynamic Office at Rome has issued a list of Italian earthquakes felt during the year 1916 (*Boll. Soc. Sismol. Ital.*, vol. xx., for 1916, pp. 228–45). The bulletin of the seismological station at Georgetown, U.S.A. (Georgetown University Publication, Bull. of the Seismog. Station, No. 2, 1918), contains the records for the year 1917, and also a list of earthquakes during the same year compiled from newspaper notices and from materials communicated from the Italian observatory of Rocca di Papa. The incompleteness of this list, due to war conditions, is evident from the fact that 90 per cent. of the earthquakes noticed occurred in Italy and the United States.

A REPORT of the Meteorological Committee for the year ended March, 1918, the sixty-third year of the Meteorological Office, has been submitted to the Lords Commissioners of his Majesty's Treasury. The report is in a very condensed form. No change has occurred during the period in the membership of the Committee, Sir Napier Shaw continuing as director, but "a large number of changes have taken place in the office staff," many being due to the exigencies of the time. Greatly increased demands are made upon the Office by the Naval, Military, and Air Services, which immensely outweigh the claims of the general public prior to the war. The demand for meteorological instruments, for instance, has risen from 3000*l*. a year to 12,000*l*. The chief feature mentioned is "the great development of pressing demands for expert meteorological assistance, and the prospect of still larger demands in the future." A Naval Meteorological Service is now attached to the Hydrographic Office of the Admiralty, and there has been a large extension of the Meteorological Section of the Royal Engineers, as well as in the Royal Air Force. Post-war problems have involved correspondence with the Ministry of Reconstruction. A knowledge of the weather is stated to be necessary now, not only at the earth's surface in many parts of the globe, but also at elevations. It is stated that among the immediate requirements of the science is the compilation in a reference form of "the information that is at present scattered in scientific journals, and of which the existence is only known to a few experienced meteorologists." The investigation of atmospheric pollution is another branch of work now allied to the Meteorological Office, and there are also the numerous observatories scattered over different parts of the British Isles, all doing admirable and useful work.

Symons's Meteorological Magazine for September seems meagre to those accustomed to the remarkably complete statistical details and the useful and interesting map of the rainfall in the Thames Valley. The magazine has now been issued for fifty-two years, and this is the first time that it has "failed to contain statistical data of the preceding month." The difficulties arising from the war are referred to, and mention is made of the increased labour and strain. "The last difficulty, however, springs from one of those conditions against which 'the gods themselves fight in vain,' and we have to submit. Time will, no doubt, overcome this difficulty also, and when it does so the tables and maps missing will be forwarded to all subscribers." In the current number an article is given on "The Water-power of the British Empire," based on the Preliminary Report of the Water-power Committee. Speaking for the editors of *Symons's Meteorological Magazine*, the article claims that "in the *Geographical Journal* for April, 1896, more than twenty years ago, we elaborated a scheme for the complete geographical description of the British Isles, with special reference to the survey of natural resources, and the time estimated for the completion of the work was twenty years. Had the scheme, which perished in a general chorus of praise of its promise, been carried out, the Ministry of Reconstruction would now have before it a mass of elaborated data, the like of which cannot now be obtained in time to guide the after-war development of the country." The correspondence on "Ashdown Forest Climatology," suggested by a walk of two meteorologists, is interesting, dealing with rain and mist formation, and it calls to mind meteorological work in the neighbourhood by Prince, of Crowborough.

IN an interesting article on "Pure Science and the Humanities" (*Queen's Quarterly*, vol. xxvi., 1918, pp. 54–65) Mr. J. K. Robertson acts as a daysman between two disciplines which ought never to have been at variance. The student of the humanities has chiefly to do with man and his activities, intellectual, literary, artistic, social, and political, in the past and the present. But he uses scientific methods; he cannot abstract man from his cosmic stage and its scenery; and he knows how scientific discoveries affect human thought and life. Therefore, when he is wise, he looks on science as in natural alliance, not in hostility. The student of science has, in the main, to do with the order of Nature. But he cannot exclude man and his works, not even his dreams; he has to study the history of his science, which often shows itself as a social phenomenon; he has his "formal discipline" as rigorous as that of the classics; his everyday work stirs the imagination, and is often rich in æsthetic stimulus; and he knows that his science may contribute, not only to the glory of the Creator, but also to the relief of man's estate, as Bacon put it. Moreover, both kinds of discipline require the same qualities of intellectual conscience—accuracy, veracity, patience, and courage. There is no sense in trying to make things that are different seem the same, but the author shows that what should be looked for, in the name of common sense, is sympathetic co-operation. For the two disciplines are complementary, equally natural and equally necessary.

The U.S. Bureau of Standards will supply on request Technologic Paper No. 113, which contains a description of the Bureau's method of determining the permeability of balloon fabrics, together with a discussion of the effect of various experimental conditions on the results obtained. The method is essentially an elaboration of Frenzel's modification of the N.P.L. method. The fabric is in contact on one side with a stream of hydrogen; over the other side air is passed at a measured rate, the concentration of hydrogen in it being determined by a one-meter Rayleigh-Zeiss gas interferometer. By reducing the depth of the gas- and air-chambers of the permeability cell to 2 mm. and 4 mm. respectively, the period required for the attainment of equilibrium conditions is shortened to about thirty minutes; the results are accurate to about 5 per cent. Curves are given for the effect of temperature and of hydrogen excess pressure on the permeability. The standard temperature adopted is 25° C.; the permeability at 15° C. is about 65 per cent. of that at 25° C. The influence of aqueous vapour is noted, dried gases giving an observed permeability about 5 per cent. greater than when they are two-thirds saturated. Vapours of rubber solvent may affect the readings; if necessary, a correction is applied from blank tests. The permeability of balloon fabric by air is found, by a suitable variation of the interferometer method, to be on the average 1/3·8 of the permeability by hydrogen.

The column of smoke usually emitted by a steamer is a vital factor in betraying her presence to an enemy. Thus a tramp steamer with the usual type of funnel emits a column of smoke to a height of 150 ft., which is visible to an observer whose eye is 15 ft. above sea-level and 17·4 nautical miles from the steamer. The danger is reduced considerably by a smoke system developed by Messrs. Yarrow and Co., Ltd., and described in the *Engineer* for September 13. The device consists of two smoke-ducts leading from the funnel to each side of the ship, the exit-mouths of the ducts being inclined downwards towards the surface of the sea. A damper in the funnel and other dampers in the ducts permit the funnel to be closed and the ducts opened. Each duct has an internal water-spray, which delivers a conical spray arranged just to touch the exit edges of the ducts. The effect of this spray is to cool the hot gases so as to cause them to fall to sea-level, and to absorb a large proportion of the solid particles of carbon in the smoke, thus reducing its blackness, and therefore its visibility. In actual use, the smoke never rises above the level of the bridge, and its appearance is similar to that emitted by a locomotive, which is black only for a minute or two after the furnace-fires have been stoked afresh. The control of the air supply to the furnaces is also improved by the device.

The successful testing last month of the new Quebec Bridge marks the completion of a great work which has claimed the attention of engineers for many years past. An interesting article will be found in *Engineering* for September 13, which includes many excellent illustrations from photographs, showing the construction of the bridge and the methods employed in erection. The structure is of the cantilever type resting on two piers, 1800 ft. centre to centre; the two cantilever arms are each 580 ft., and the span is completed by a central suspended girder of 640 ft. span, under which there is a free headway at high water of 150 ft. The two anchor-arm spans are each 515 ft., and the total length of the whole structure, including approach spans, is 3239 ft. There are two railway tracks, and outside these two footpaths. The collapse of the first bridge during erection in August, 1907, has undoubtedly influenced American bridge design for the good. A contributory cause to the accident was the ridiculously small sum set aside for professional advice, which made the provision of an adequate scientific staff impossible. This lesson was taken to heart in the design of the new bridge; the preparation of the plans for the official design of the new structure is said to have cost 100,000*l*., and a board of engineers was constituted to supervise the plans and erection. Numerous tests were made on models of the lower chord compression members (which were the cause of the disaster to the first bridge), and it is of interest to note that some of these "models" exceeded in size the principals of most bridges.

A new series of monographs on experimental biology and general physiology is announced by the J. B. Lippincott Co. The general editors will be Dr. J. Loeb, Prof. T. H. Morgan, and Prof. W. J. V. Osterhout. Among the volumes arranged for are "The Chromosome Theory of Heredity," Prof. T. H. Morgan; "In-breeding and Out-breeding," E. M. East and D. F. Jones; "Localisation of Morphogenic Substances in the Egg," Prof. E. G. Conklin; "Tissue Culture," R. G. Harrison; "Permeability and Electrical Conductivity of Living Tissue," Prof. W. J. V. Osterhout; "The Equilibrium between Acids and Bases in Organism and Environment," L. J. Henderson; "Chemical Basis of Growth," Prof. T. B. Robertson; "Primitive Nervous System," Prof. G. H. Parker; and "Co-ordination in Locomotion," A. R. Moore.

Mr. Edward Arnold announces "Petrol and Petroleum Spirits," by Capt. W. E. Guttentag, with a preface by Sir John Cadman; *Messrs. Longmans and Co.'s* list includes a new and enlarged edition of "Liquid Steel: Its Manufacture and Cost," by Col. D. Carnegie and S. C. Gladwin; *Messrs. Crosby Lockwood and Son* promise "The Aircraft Identification Book for 1918: A Concise Guide to the Recognition of Different Types and Makes of all Kinds of Aeroplanes and Airships," by R. B. Matthews and G. T. Clarkson, and a new edition of the "Naval Architect's, Shipbuilder's, and Marine Engineer's Pocket Book," by C. Mackrow and L. Woollard; *Messrs. G. Routledge and Sons, Ltd.*, have in preparation for their New Industrial Efficiency Books series a translation by E. Butterworth of "The Human Motor and the Scientific Foundations of Labour," by Dr. J. Amar, "The Science of Labour and its Organisation," by Dr. J. Ioteyko, and "The Taylor System in Franklin Management," by Major G. D. Babcock.